

REMARKS

Claims 1-25 are pending in the application. Claims 1, 6, 7 and 13 are rejected. Claims 2-5, 8-12 and 14-25 are withdrawn from consideration. Claims 1, 14 and 20 have been amended.

Election/Restrictions

The Examiner has acknowledged the Applicants' election with traverse of Species 1, represented by Figs. 2 and 8, for examination. The Examiner has examined claims 1, 6, 7 and 13 directed to that species. Claim 1 is generic to at least original claims 2-13. Moreover, Applicant has amended claims 14 and 20 to make them depend from claim 1. Thus, all of claims 2-25 should be allowable if claim 1 is found to be allowable. Applicant reserves the right to file a divisional application on the separate features of the non-elected species.

Specification

The Examiner objects to the Title as not being descriptive of the invention. The Title has been amended to further specify the subject matter of the invention.

The Examiner has requested Applicant to review the specification for errors. Based upon Applicants' review of the specification in connection with the preparation of a response to this Office Action, Applicant has not found any errors.

Claim Rejections - 35 U.S.C. § 102

Claims 1, 6, 7, and 13 are rejected under 37 U.S.C. 102(b) as being anticipated by Huang et al. (U.S. Patent 6,414,385). This rejection is traversed for at least the following reasons.

Claims 1, 6, 7 and 13

As to claim 1, the claim has been amended to define the T-shape of the die pad, as illustrated in Fig. 2, with the smaller lateral surface 202b in contact with the chip and the larger lateral surface 202a being disposed above the smaller surface. This shape is clearly different from that illustrated in Huong et al, as the die pad in all of the Figures of Huong, particularly Fig.

3, is an inverted T and has the larger lateral surface 204a in contact with the chip 208 and the smaller lateral surface 204b disposed above the larger surface 204a.

The advantages of the die structured according to the illustration in Fig. 2 is explained in the specification of the present application with regard to Fig. 10 as creating a cut out portion 1035 at the periphery of second face 1002b with an inset surface 1002c. There are several advantages explained with respect to this design. First, the edge formed between second face 1002b and inset surface 1002c can serve as a reference guide to the dispensing of an adhesive component 1004 used to couple the die pad 1002 to another component, such as IC chip 203. Second, the inset surface 1002c may further provide overflow space and may prevent the unwanted spread of adhesive in the event that the adhesive component 1004 overflows from the second face 1002. Third, the inset surface 1002c is on a different plane from the second face 1002b so that if die pad 1002 may be made to extend laterally to overlap with wire 205, illustrated in Figure 2, clearance space 1035 is provided for wire 205 at connection points 205a and 205b. Fourth, the T-shape on its underside provides a secure coupling structure for the encapsulant so that delamination is prevented. Finally, the larger surface of the upright T-shape provides a larger surface for affixing other structures, such as a heat spreader or heat sink, and efficiently distributing heat from the larger surface.

Huong cannot achieve any of these goals and its teachings are directly opposite to that of the present invention. Indeed, Huong teaches the attachment of the heat spreader 334 to the chip directly, in part because the size of the die pad is small and cannot effectively deliver heat upwards through the die pad.

Claim 1 has been amended to define this structure, as illustrated in Fig. 2 in connection with the selected species. Claim 1 now is clearly allowable over the cited art.

Moreover, those claims that have been withdrawn but are dependent on claim 1, including all of original claims 2-13, and, on the basis of their dependency from claim 1, claims 14-25 as well, should now be allowed. Claims 14-25 add to the T-shaped die feature of claim 1 the features that the Examiner found to be separately classifiable. However, as is clear from the teachings of the specification and the express statement that the invention is not limited to the

Amendment under 37 C.F.R. § 1.111
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exemplary embodiments but that various changes and modifications can be made within the spirit and scope of the invention, the added features of the dependent claims are combinable with and augment and are not inconsistent with the T-shaped die pad defined by claim 1. These added features and their implementation are fully disclosed in the specification and drawings and would be implemented by those skilled in the art on the basis of the teachings in the application.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

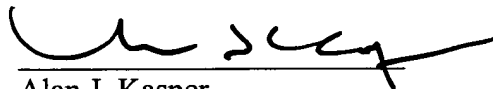
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